Log Event A

Borehole # 21-00-21

Borehole Information

Farm : BX	**Tank :** BX	**Site Number :** 299-E33-78
N-Coord : 45,462	**W-Coord :** 53,625	**TOC Elevation :** 658.31
Water Level, ft :	**Date Drilled :** 2/28/1948	

Casing Record

Type : Steel-welded	Thickness : 0.313	ID, in. : 8
Top Depth, ft. : 0	Bottom Depth, ft. : 150	

Borehole Notes:
Borehole 21-00-21 was drilled in February 1948 to a depth of 150 ft with 8-in. casing. Data from the drilling log and Chamness and Merz (1993) were used to provide construction information. The drilling log reports that the borehole casing was perforated from 40 to 100 ft in March 1948, but does not indicate that the borehole was grouted. The top of the casing, which is the zero reference for the SGLS, is about 0.5 ft below the ground surface.

The current total depth of the borehole was measured at 144 ft below the top of the casing using a weighted tape, although this borehole was drilled to a total depth of 150 ft in 1947. There is no indication as to why the borehole is shallower than the depth to which it was originally drilled.

Equipment Information

Logging System : 1B	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 02/1997	**Calibration Reference :** GJO-HAN-14	**Logging Procedure :** P-GJPO-1783

Log Run Information

Log Run Number : 1	**Log Run Date :** 08/04/1997	**Logging Engineer:** Gary Lekvold
Start Depth, ft.: 0.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 31.5	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 2	**Log Run Date :** 08/05/1997	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 144.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 50.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 3	**Log Run Date :** 08/06/1997	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 30.5	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 51.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

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Analysis Information

Analyst : D.L. Parker

Data Processing Reference : MAC-VZCP 1.7.9 Analysis Date : 01/20/1998

Analysis Notes :

The pre-survey and post-survey field verification spectra for all but one logging run met the acceptance criteria established for peak shape and system efficiency. One post-survey verification spectra did not meet the established acceptance criteria. The energy calibration and peak-shape calibration from the spectra that best matched the data were used to establish the peak resolution and channel-to-energy parameters used in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.330-in.-thick steel casing were applied during analysis.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations. Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

A plot of the spectrum shape factors for Co-60 is included. The plot is used as an interpretive tool to help determine the radial distribution of man-made contaminants around the borehole.

A plot of selected historical gross gamma logs from 1975 to 1992 is included. The plot can be used to help identify any historical changes in gross gamma activity.

An additional plot shows the average historical gross gamma activities for the interval from about 50 to 70 ft with calculated decay curves for Co-60 and Ru-106 contamination.